

REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 11, 14, 15, 19, 20, 23, 26 and 32 are amended. Claims 1-10, 16-18, 24, 25 and 29-31 were previously withdrawn. Claims 1-32 are pending in the application.

I. Rejection under 35 U.S.C. § 112

In the Office Action, at page 2, numbered paragraph 2, claims 11-15, 19 and 23 were rejected under 35 U.S.C. § 112, 2nd paragraph as being indefinite. Claims 11, 14, 15 and 19 are amended in light of the Examiner's comments, and accordingly, withdrawal of the § 112, 2nd paragraph rejection is respectfully requested.

II. Rejections under 35 U.S.C. § 102

In the Office Action, at page 3, numbered paragraph 3, claims 19-21, 23 and 26-28 were rejected under 35 U.S.C. § 102(b) as being unpatentable over Japanese Patent Pub. No. 4-197931. This rejection is respectfully traversed because JP '931 does not discuss or suggest:

dynamically changing an angle formed between a friction member and a leading edge of each of the papers, the friction member abutting against the leading edges of each of the papers and pivotally moving the friction member applying frictional resistance to the leading edge of each of the plurality of papers based on the detection so that each of the plurality of papers are separately picked up,

as recited in amended independent claim 19.

JP '931 additionally does not discuss or suggest:

pivotally moving a friction member and changing an angle formed between the friction member and a leading edge of the paper, the friction member abutting against the leading edge of the paper, upon classifying the paper as the first type or the second type, the friction member applying frictional resistance to the leading edge of the paper,

as recited in amended independent claim 20.

Further, JP '931 does not discuss or suggest:

pivotally moving the friction member and changing an angle formed between the friction member and a leading edge of the paper, the friction member abutting against the leading edge of the paper, based on the determination, the friction member applying

frictional resistance to the leading edge of the paper, wherein an angle formed between the friction member and the leading edge of the paper when the friction member is moved in a first direction is larger than an angle formed when the friction member is moved in a second direction upon determining that the paper belongs to the first type of paper,

as recited in amended independent claim 26.

As a non-limiting example, the present invention according to claim 19, for example, is directed to a method of picking up paper in a printing apparatus. The method includes detecting whether the paper is a first thickness type or whether the paper is a second thickness type. The method further includes changing an angle formed between a friction member and leading edges of each of the papers, where the friction member abuts against the leading edges of each of the papers. The friction member is pivotally moved, thus applying frictional resistance to the leading edge of each of the plurality of papers based on the detection of thickness type.

JP '931 discusses that a sheet conveyor device is provided with a feeder 3 for taking in sheets 2 of paper and a sensor 29 and a read part 30 which detects the thickness and skew of the sheets. The feeding force of the feeder 3 is set according to the size, thickness, etc. of the sheets. JP '931 further shows a spring 10 attached to an element 9 to which rollers 7a, 7b of the feeder 3 are connected. The Examiner alleges that a friction member (including feeder 3) is pivotally moved, thus applying frictional resistance to a leading edge of each of the plurality of papers based on detection of size, thickness, etc. The Examiner further alleges that JP '931 teaches that "an angle formed between the friction member (including 3) and the leading edge of the paper when the friction member (including 3) is moved in a first direction is larger than an angle formed when the friction member (including 3) is moved in a second direction upon determining that the paper belongs to the first type of person." The Applicants respectfully disagree.

It is unclear from the English abstract of JP '931 that the angle of feeder 3 with respect to the paper the feeder 3 is feeding is changed based on the determined thickness of the paper. Further, it is unclear that feeder 3 is pivotally moved. Specifically, JP '931 discusses only that the feeding force of the feeder 3 is set based on the thickness and skew quantity of the sheets of paper. JP '931 does not discuss or suggest that the angle of a friction member (corresponding to feed belt 8) is moved in a first or second direction based on the type of paper detected. The abstract of JP '931 discusses only that the feeding force is changed based on the thickness and/or skew.

Further, JP '931 does not specifically discuss or suggest dynamically changing an angle formed between a friction member and a leading edges of each of the papers, the friction member abutting against the leading edges of each of the papers and pivotally moving the friction member applying frictional resistance to the leading edges of each of the plurality of papers based on the detection so that each of the plurality of papers are separately picked up, as recited in claim 19 and similarly in claims 20 and 26. JP '931 does not suggest that a leading edge abuts against the friction member and that an angle formed between the friction member and the leading edges of each of the papers is changed based on the detection of the type of paper. Even assuming, *arguendo*, that feeder 3 was pivotally moved, JP '931 does not suggest that an angle is formed between feeder 3 and leading edges of sheets of paper, where the friction member abuts against leading edges of each of the papers, and that the friction member is pivoted and the angle is changed based on the detection of the type of paper.

Therefore, as JP '931 does not discuss or suggest "dynamically changing an angle formed between a friction member and a leading edge of each of the papers, the friction member abutting against the leading edges of each of the papers and pivotally moving the friction member applying frictional resistance to the leading edge of each of the plurality of papers based on the detection so that each of the plurality of papers are separately picked up," as recited in amended independent claim 19, does not discuss or suggest "pivotally moving a friction member and changing an angle formed between the friction member and a leading edge of the paper, the friction member abutting against the leading edge of the paper, upon classifying the paper as the first type or the second type, the friction member applying frictional resistance to the leading edge of the paper," as recited in amended independent claim 20, and JP '931 does not discuss or suggest "pivotally moving the friction member and changing an angle formed between the friction member and a leading edge of the paper, the friction member abutting against the leading edge of the paper, based on the determination, the friction member applying frictional resistance to the leading edge of the paper, wherein an angle formed between the friction member and the leading edge of the paper when the friction member is moved in a first direction is larger than an angle formed when the friction member is moved in a second direction upon determining that the paper belongs to the first type of paper," as recited in amended independent claim 26, claims 19, 20 and 26 patentably distinguish over the reference relied upon. Accordingly, withdrawal of the § 102(b) rejection is respectfully requested.

Claims 21, 23 and 27-28 depend either directly or indirectly from independent claims 19, 20 and 26 and include all the features of their respective independent claims, plus additional features that are not discussed or suggested by the reference relied upon. For example, claim

27 recites that "a frictional resistance applied to the leading edge of the paper by the friction member increases when the angle formed between the friction member and the leading edge of the paper is reduced." Therefore, claims 21, 23 and 27-28 patentably distinguish over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 102(b) rejection is respectfully requested.

In the Office Action, at page 6, numbered paragraph 4, claims 11, 12, 19-21, 23, 26-28 and 32 were rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 5,449,162 to Saito et al. This rejection is respectfully traversed because Saito does not discuss or suggest:

pivotal moving the at least one friction member and changing an angle formed between the at least one friction member and leading edges of the sheets of paper, the friction member abutting against each of the leading edges of the sheets of paper, to the second direction by driving the cam unit, the friction member applying frictional resistance to leading edges of the sheets of paper,

as recited in amended independent claim 11.

In addition, Saito does not discuss or suggest:

automatically adjusting an angle of the friction member based on said determining to dynamically change an angle formed between the friction member pivotally attached to the paper feeding section and leading edges of the sheets of paper picked up from the paper feeding section, the friction member abutting against each of the leading edges of the sheets of paper, the friction member applying frictional resistance to leading edges of the sheets of paper,

as recited in amended independent claim 32.

Saito further does not discuss or suggest the features of independent claims 19, 20 and 26, as discussed above with respect to JP '931.

Saito discusses a sheet feeding device in which that "a detection signal representing the thickness of the sheet detected by such sheet-thickness detection means is transmitted to a control unit 135 [which] adjusts the amount of overlap between the feeding roller and the inversely-rotating roller based on the detection signal". Saito discusses lowering the separation roller until the uppermost sheet of originals starts to be conveyed. Saito does not discuss or suggest that an angle between a friction member and leading edges of sheets of paper is adjusted to change the angle. Saito discusses only that the amount of overlap between the inversely-rotating roller 126 and the feeding roller 125 is adjusted, but does not suggest that an angle between roller 126, which the Examiner alleges corresponds to a friction member, and a

leading edge of sheets of paper is changed. In contrast, an angle formed between the friction member 50 of claim 32, for example, and the leading edges of sheets of paper is adjusted. Further, the friction member 50 abuts against each of the leading edges of the sheets of paper, while in Saito, the position of inversely-rotating roller is moved up or down to provide a narrower or larger space between the rollers 125 and 126. The friction member 126 of Saito does not abut against leading edges of sheets of paper, but only aids in feeding the sheets of paper through the sheet feeding device.

Therefore, as Saito does not discuss or suggest "pivotal moving the at least one friction member and changing an angle formed between the at least one friction member and leading edges of the sheets of paper, the friction member abutting against each of the leading edges of the sheets of paper, to the second direction by driving the cam unit, the friction member applying frictional resistance to leading edges of the sheets of paper," as recited in amended independent claim 11 and similarly in claims 19, 20, 26 and 32, claims 11, 19, 20, 26 and 32 patentably distinguish over the reference relied upon. Accordingly, withdrawal of the § 102(b) rejection is respectfully requested.

Claims 12, 21, 23 and 27-28 depend either directly or indirectly from independent claims 11, 19, 20 and 26 and include all the features of their respective independent claims, plus additional features that are not discussed or suggested by the reference relied upon. For example, claim 12 recites that "wherein the operation of supplying the signal comprises: supplying a detection signal from a detection sensor that detects the type of paper loaded in the paper feeding section provided to the main body." Therefore, claims 12, 21, 23 and 27-28 are believed to be allowable for at least the reasons noted above. Accordingly, withdrawal of the § 102(b) rejection is respectfully requested.

III. Rejections under 35 U.S.C. § 103

In the Office Action, at page 10, numbered paragraph 5, claims 13 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Saito in view of U.S. Patent No. 6,002,891 to Shin. This rejection is respectfully traversed.

As discussed above, Saito does not discuss or suggest all the features of independent claims 11 and 20. Shin fails to make up for the deficiency in Saito in that Shin does not suggest that a friction member abuts against leading edges of paper and Shin does not suggest that an angle formed between the friction member and leading edges of paper is adjusted based on a detected type of paper. Therefore, as the combination of Saito and Shin does not discuss or

suggest all the features of independent claims 11 and 20, claims 11 and 20 patentably distinguish over the references relied upon.

Claims 13 and 22 depend from independent claims 11 and 20, respectively, and include all the features of their respective independent claims, plus additional features that are not discussed or suggested by the references relied upon. For example, claim 13 recites that “the operation of supplying the signal comprises: supplying a signal from a memory having stored information in relation to the types of paper inputted through a print driver by a user.” Therefore, claims 13 and 22 patentably distinguish over the references relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

In the Office Action, at page 11, claims 11, 15, 19, 20, 23 and 26-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent Pub. No. 57-180543 in view of Saito. This rejection is respectfully traversed.

In a similar discussion to that which was discussed above, JP '543 does not suggest that a friction member abuts against leading edges of paper and that an angle is formed between the friction member and the leading edges of paper. JP '543 further does not suggest that an angle formed between the friction member and leading edges of paper is adjusted based on a detected type of paper. As discussed above, Saito further does not suggest that a friction member abuts against leading edges of paper and that an angle is formed between the friction member and the leading edges of paper and that an angle formed between the friction member and leading edges of paper is adjusted based on a detected type of paper. Therefore, the combination of JP '543 and Saito does not suggest all the features of independent claims 11, 19, 20, 26 and 32, claims 11, 19, 20, 26 and 32 patentably distinguish over the references relied upon. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

IV. Allowable Subject Matter

Applicants are appreciative of the acknowledgement by the Examiner that claim 14 would be allowable if amended to overcome the § 112, 2nd paragraph rejection. Accordingly, claim 14 is amended in light of the Examiner's comments.

Conclusion

In accordance with the foregoing, claims 11, 14, 15, 19, 20, 23, 26 and 32 have been amended. Claims 1-10, 16-18, 24, 25 and 29-31 were previously withdrawn. Claims 1-32 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.


Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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